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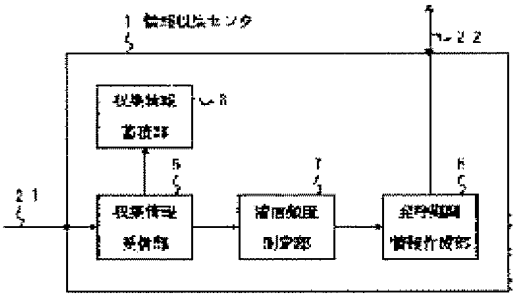
(71)Applicant : NIPPON TELEGR & TELEPH CORP <NTT>
(72)Inventor : SAKAI KAZUO
SUZUKI TATSURO
KISHIDA KATSUMI
WATABE TOMOKI
MIZUMOTO IKUTOSHI
MARUYAMA KOICHI
FUKUNAGA HIRONOBU
HAYAKAWA KAZUHIRO
KUMAGAI YOSHIKO

(54) INFORMATION COLLECTING METHOD

(57)Abstract:
PROBLEM TO BE SOLVED: To set accurately a collection period to correct a prescribed number of information sets by measuring frequency of arrival of incoming calls to a collection center while a plurality of terminal equipments that are information transmission sources make calls by a call frequency pattern set at first properly and changing the call frequency pattern of a terminal equipment based on the measurement result.
SOLUTION: A collection information reception section 5 is connected to a communication line 21 connected to a communication network and receives information sent from a caller terminal equipment. The received information is stored a collection information storage section 6 as required or recorded by a recording section. On the other hand, the frequency of arrival of calls to the reception section 5 is measured by a received call frequency measurement section 7. The measured value is sent to a call period information generating section 8. The call period information generating section 8 sets a call period based on the received measured value and generates the call period information including the call period and the call period information is sent to a call period information transmission section via a communication line 22.



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CLAIMS

[Claim(s)]
[Claim 1] In the information gathering approach that two or more call origination terminal units carry out call origination to the call origination time of day during the specified call origination period, transmit information to an information gathering center via a communication line, and this information gathering center receives said information After setting up the 1st call origination period, at least the part in said two or more call origination terminal units starts call origination after the time of day which said 1st call origination period starts. The 2nd different call origination period from said 1st call origination period is set as the time of day of the arbitration after the time of day which said 1st call origination period starts. Some [at least] call origination terminal units in said two or more call origination terminal units perform call origination at said 2nd call origination period. Generally the k-th (k is the one or more natural numbers) call origination period is set up, and the call origination period of ** (k+1) is set as the time of day of the arbitration after the start time of the call origination period. Some [at least] call origination terminal units in said two or more call origination terminal units are the information gathering approaches characterized by repeating until it amounts to several n as which call origination is performed at the call origination period of the ** (k+1) concerned, and the value of k determines the above-mentioned process beforehand.
[Claim 2] The information gathering approach according to claim 1 by which only the 1st and 2nd call origination periods are set up.
[Claim 3] The information gathering approach according to claim 1 or 2 of measuring the arrival-of-the-mail frequency in the k-th call origination period, and setting up the call origination period of ** (k+1) based on the result.
[Claim 4] Said two or more call origination terminal units are the information gathering approaches of one publication of claim 1-3 characterized by performing call origination once through all call origination periods.
[Claim 5] Some [at least] call origination terminal units in said two or more call origination terminal units are the information gathering approaches given in each claim from claim 1 characterized by being a call origination terminal unit except the call origination terminal unit set up so that the time of day which performs call origination may be before the time of day which said 2nd call origination period starts to claim 4.
[Claim 6] The time of day which said 2nd call origination period starts is the information gathering approach of one publication from claim 1 characterized by considering as henceforth from the time of day which said 1st call origination period ends to claim 5.
[Claim 7] The call origination time of day during said specified call origination period is the information gathering approach of one publication from claim 1 characterized by being set up at random to claim 6.
[Claim 8] Either or the both sides of said 1st call origination period and the 2nd call origination period is the information gathering approach of one publication from claim 1 characterized by being set up based on the information sent to said two or more call origination terminal units by broadcast to claim 7.
[Claim 9] In the information gathering approach that two or more call origination terminal units

carry out call origination to the call origination time of day during the specified call origination period, transmit information to an information gathering center via a communication line, and this information gathering center receives said information The information gathering approach characterized by setting up former new end time and forbidding the call origination after the new end time concerned in the time of day of the arbitration after the time of day which said specified call origination period starts rather than the time of day which said specified call origination period ends.

[Claim 10] The call origination time of day during said specified call origination period is the information gathering approach according to claim 9 characterized by being set up at random.

[Claim 11] Said specified call origination period, one side of said new end time, or both sides is the information gathering approach according to claim 9 or 10 characterized by being set up based on the information sent to said two or more call origination terminal units by broadcast.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the approach of specifying call origination possible time amount as a communication terminal, when collecting information via a communication line from many communication terminals.
[0002]
[Description of the Prior Art] For example, in the audience participation program in television broadcasting and a radio broadcasting, the viewer who watched the program may send the reply to quiz or a questionnaire to a broadcasting station etc. via a communication line from communication terminals, such as a telephone. Moreover, a viewer may send a purchase application to a vendor's place via a communication line like a mail order. In such a case, the side which collects a broadcasting station or information like a vendor may have determined quantity, such as a reply and a purchase application, beforehand. The information gathering approach with this invention effective when the amount of the information collected in this way even if the object of information gathering is many and unspecified persons is decided beforehand is offered.

[0003] Thus, when the amount of collection is decided, there is a case where he wants to make arrival-of-the-mail frequency low, and to collect it if possible as a side which collects information, using the time amount with desirable if possible finishing collecting those information early case [time amount] or permitted to the limit. Furthermore, it thinks to make arrival-of-the-mail frequency into a suitable value in consideration of the capacity to receive information.
[0004] In such a case, as a related technique, the approach of controlling the call origination probability of the terminal unit by the side of call origination is well-known. Moreover, as another well-known example, the terminal unit by the side of call origination is beforehand classified into two or more classes, and the approach of permitting call origination one by one and going is in the terminal unit of a different class for every time zone. However, in being the public network to which many and unspecified terminal units were connected in addition to the communication terminal set as the object of information gathering, there is not necessarily no correlation between the arrival-of-the-mail frequency to information gathering equipment, and a call origination probability, and, for this reason, there is no guarantee clear about the time of day when the information on the amount of a schedule gathers.
[0005]
[Problem(s) to be Solved by the Invention] This invention aims at offering the information gathering approach which made it possible to set it as the various forms which are collection sides and desire an arrival-of-the-mail frequency pattern in the case of information gathering. It is in offering the concrete control approach for being in the condition of having made the call origination frequency pattern set up suitably at the beginning performing call origination, measuring the arrival-of-the-mail frequency to a collection center to two or more terminal units which are the informational sources of dispatch, changing the call origination frequency pattern of a terminal unit into them based on a measurement result, and changing a call origination frequency pattern into them further in more detail.

[0006]
[Means for Solving the Problem] Like the approach of giving the call origination probability of the above-mentioned terminal unit, even if it gives a call origination probability to each of two or more source terminal units of dispatch, just this is insufficient as information for predicting the frequency where information is collected in the information gathering center. It is mentioned that the number of the terminal units which are standing by as the reason to carry out call origination cannot be known by the collection center side, or that call origination is not connected with the arrival to an information gathering center center as it is according to the situation of the traffic of a communication network. Moreover, the limit by the reception capacity of an information gathering center is also assumed.
[0007] This invention tends to measure the frequency where information is actually collected in the information gathering center on the assumption that such conditions, and tends to presume future arrival-of-the-mail frequency by making this measurement result into a basis, and it is going to set it as the value of a request of arrival-of-the-mail frequency further.
[0008] In the information gathering approach that two or more call origination terminal units carry out call origination of the description of this invention to the call origination time of day during the specified call origination period, transmit information to an information gathering center via a communication line, and this information gathering center receives said information After setting up the 1st call origination period, at least the part in said two or more call origination terminal units starts call origination after the time of day which said 1st call origination period starts. The 2nd different call origination period from said 1st call origination period is set as the time of day of the arbitration after the time of day which said 1st call origination period starts. Some [at least] call origination terminal units in said two or more call origination terminal units perform call origination at said 2nd call origination period. Generally the k-th (k is the one or more natural numbers) call origination period is set up, and the call origination period of ** (k+1) is set as the time of day of the arbitration after the start time of the call origination period. Some [at least] call origination terminal units in said two or more call origination terminal units perform call origination at the call origination period of the ** (k+1) concerned, and are in the information gathering approach repeated until it amounts to several n as which the value of k determines the above-mentioned process beforehand.
[0009]
[Embodiment of the Invention] According to this invention, a command is given to each terminal unit in the 1st step so that call origination may be performed at random between two time of day t1 and t2. If the value which generated the value between t1-t2 at random, and was first generated within each terminal unit as an example was r, it is made to perform call origination at time of day r. As a result, the call origination from each terminal unit is equally distributed among t2 from time of day t1. In addition, as for this command, notifying by broadcast is realistic.
[0010] In the 2nd step, the frequency of the arrival produced in the information gathering center by the call origination equally generated with each terminal unit is measured. If measured value was h1, this value h1 is presumed to be what is continued till time of day t2 like drawing 1 . And that by which total n= (t2-t1) and the information on h1 will be collected by time of day t2 is presumed.
[0011] Arrival-of-the-mail frequency is changed in the 3rd step. When changing into the larger value as a pattern of modification than h1, it may change into a value conversely smaller than h1.

[0012] When changing into a larger value, it is illustrated like drawing 2 . Drawing 2 shows the case where arrival-of-the-mail frequency is changed into h2 [larger] than h1, after time of day tnow. changing arrival-of-the-mail frequency into h2 -- the bottom of the arrival-of-the-mail frequency h1 before modification -- time of day tnow from -(t2-tnow) h1 presumed to be collected before t2 -- the information on a number will be collected by time-of-day t3= (t2-tnow) smaller than t2 in approximation, and h1/h2. The call origination conditions of the terminal unit which is r<=t3 are not changed about the call origination time of day r determined as random at the beginning, but about the terminal unit used as r>t3, if the value which newly generated the value between tnow -t3 at random, and was generated first was r', it is made to perform call

origination to time-of-day r' as contents of a command of call origination condition modification for that. the call origination of the terminal unit which had become r>t3 as a result at the beginning -- time of day tnow from -- it distributes equally among t3.
[0013] Thus, as a purpose of changing arrival-of-the-mail frequency into a larger value, the case where h1 wants to be smaller than the reception throughput by the side of a collection center, and to utilize reception capacity to the limit can be considered to finish informational collection between short time rather than the original schedule. In addition, in the above-mentioned argument, it is because it is thought that the traffic of the reason refused as approximation-like of a network increases by making the rate of call origination high, and an error produces it in prediction of arrival-of-the-mail frequency.
[0014] When changing into the value h3 smaller next than h1, it is illustrated like drawing 3 . the same argument as the case where it changes into h2 -- before modification -- time of day tnow from -(t2-tnow) h1 presumed to be collected before t2 -- the information on a number will be collected by larger time-of-day t4= (t2-tnow) in approximation than t2, and h1/h3. As contents of a command of call origination condition modification for that, it is r>tnow at the beginning. If the value which newly generated the value between tnow -t4 at random, and was first generated about the set-up terminal unit was r', it is made to perform call origination to time-of-day r'. the result -- original r>tnow the call origination of the terminal unit which had become -- time of day tnow from -- it distributes equally among t4.
[0015] Thus, as a purpose of changing arrival-of-the-mail frequency into a smaller value, the permitted time amount is used to the limit, and the case where the information on a predetermined number is collected without applying a burden to traffic etc. can be considered.
[0016] How the call origination time of day r forbids call origination about the terminal of r>t5 (however, t5<t2) as a modification pattern at the beginning not only like modification of arrival-of-the-mail frequency but like drawing 4 can be considered.
[0017] Moreover, about the terminal whose call origination time of day r was r>t6 (however, t6<t2) like drawing 5 at the beginning, call origination is started at the next time of day t7, and the approach which t8 is made to end is also considered.
[0018] Thus, in this invention, since modification of the call origination time zone of a terminal unit is enabled, it becomes possible to be adapted for change of the congestion factor of traffic, or the situation by the side of an information gathering center, and to control arrival-of-the-mail frequency free.
[0019] Drawing 6 shows the flow of the information gathering approach of this invention.
[0020] In step 1, the 1st call origination period is set up first. The 1st set-up call origination period is sent to each call origination terminal unit by broadcast, and the process to which a random number is generated and call origination time of day is set is included in this step 1 like the above-mentioned with each call origination terminal unit which received this. Collection is started at step 2. And if it is detected that fixed time amount passed at step 3, it will progress to step 4 and the arrival-of-the-mail frequency till then will be measured. And when judged with it being necessary to change call origination conditions in step 5, in step 6, the 2nd call origination period is set up and it is similar to step 1, and the 2nd set-up call origination period is sent to each call origination terminal unit by broadcast, and the process to which a random number is generated and call origination time of day is set is included like the above-mentioned with each call origination terminal unit which received this. After that, information gathering is continued until a call origination period expires. As mentioned above, let from START of drawing 6 to the step 6 be the 1st cycle.
[0021] When a call origination period needs to be reset up newly between them, it is also possible to set up again, and the procedure in that case considers that a setup of the 2nd call origination period of step 6 of drawing 6 is a setup of the 1st call origination period of step 1, and should just think that from step 1 to the step 6 is repeated. Let the repeat from step 1 after the 1st cycle to step 6 be the n-th cycle (however, referred to as n>=2). In the flow of the n-th cycle, since the 1st call origination period of step 1 is already broadcast as 2nd call origination period of step 6 in the cycle before that, it is not necessary to perform broadcast stated by explanation of the 1st cycle. In the flow of the n-th cycle, it is considered that collection

initiation of step 2 is initiation of the 1st call origination period.
[0022] Next, the function and actuation of each part which constitute the system configuration by which the information gathering approach of this invention is enforced, and this system by drawing 7 , drawing 8 , and drawing 9 are explained.
[0023] Drawing 7 shows an example of the configuration of the whole system. In drawing, in 1, a call origination terminal unit and 3 express a communication network, and, as for 4, an information gathering center and 2 express the call origination period information transmitting section, respectively. Moreover, 20, 21, and 22 show the communication line.
[0024] Each carries out call origination of two or more call origination terminal units 2 to the call origination time of day set [in / at the beginning / the 1st call origination period] up at random, and they transmit information to the information gathering center 1 through a communication network 3. In the information gathering center 1, the information which received a message is outputted or accumulated if needed. And arrival-of-the-mail frequency is measured, the 2nd call origination period is set up if needed, and the call origination period information about the 2nd call origination period is created. This call origination period information is sent to the call origination period information transmitting section 4 via the communication line 22, and is broadcast in the form of a broadcast wave from the call origination period information transmitting section. Based on the call origination period information on a call origination terminal unit broadcast [in / a part / at least / equipment], it resets call origination time of day.
[0025] Drawing 8 shows the configuration of an information gathering center. In 5, the collection information storage section and 7 express an arrival-of-the-mail frequency test section, and, as for 8, a collection information receive section and 6 express the call origination period information creation section, respectively. These functions and actuation are as stating below. That is, it connects with the communication line 21 connected to a communication network 3, and the collection information receive section 5 receives the information sent from the call origination terminal unit 2. The received information is recorded by the Records Department which is accumulated in the collection information storage section 6 if needed, or does not illustrate. On the other hand, the arrival-of-the-mail frequency to a receive section 5 is measured in the arrival-of-the-mail frequency test section 7. This measured value is sent to the call origination period information creation section 8. In the call origination period information creation section 8, a call origination period is set up based on the received measured value, the call origination period information containing this is created, and call origination period information is sent to the call origination period information transmitting section 4 through a communication wire 22.
[0026] Drawing 9 shows the configuration of the call origination terminal unit 2. 9 is the call origination section and the call origination section 9 has the circuit interface section 10 and the network control section 11 to a communication wire 20. Moreover, for 12, as for the call origination period setting section and 14, a call origination actuation control section and 13 are [a call origination period information receive section and 15] control units. Moreover, 18 is the transmit information are recording section, and 19 is the connection switch section. These functions and actuation are as stating below.
[0027] In the call origination period information receive section 14, the call origination period information broadcast from said call origination probability information transmitting section 4 is received, and the received information is sent to the call origination period setting section 13. In the call origination period setting section 13, while extracting a call origination period from call origination period information, a random number is generated and the call origination time of day within a call origination period is set up. The set-up call origination time of day is sent to the call origination actuation control section 12. From the call origination actuation control section 12, when said set-up call origination time of day came and it is checked that transmit information is accumulated in the transmit information are recording section 18, the trigger for call origination actuation initiation is sent to a network control section.
[0028] In order to perform call origination, it is required for the information transmitted from a control unit 15 to be inputted by the user ahead of call origination time of day. While the inputted information is accumulated in the transmit information are recording section 18 till call

origination time of day, the information which shows that transmit information is accumulated is sent to the call origination actuation control section 12 from the transmit information are recording section. Thus, although it is required to input the information to transmit before call origination time of day at the latest about actuation of the call origination actuation control section 12, the approach the information to transmit makes it the requirement for call origination actuation to be inputted before the time of day of the collection initiation in the 1st above-mentioned cycle is also considered.

[0029] The line connection procedure currently used idiomatically [because of connection of a communication line] as call origination actuation of the call origination section 9 is performed. That is, the connection switch section 19 is moved to the position by which the circuit interface section 10 is connected to the network control section 11 at the call origination initiation time. And after the network control section 11 carries out circuit prehension (or off-hook) through the circuit interface section 10 ignited by the trigger from the call origination actuation control section 12, it sends out the connection signal for connecting a circuit to the information gathering center 1 (or dial), and waits for the line connection by the communication network. After a line connection, the switch section 19 is switched to the transmit information are recording section 18 side, reads the transmit information accumulated in the transmit information are recording section 18, and sends it out to a communication wire 20.

[0030] A system configuration to carry the configuration of the information gathering approach of this invention and this out is as having stated above.

[0031] In addition, although the above explanation showed drawing where broadcast of call origination period information is performed by wireless, broadcast may be performed on the cable track. Moreover, the configuration gestalt and signal system of a track are not asked. Moreover, when regarding the 1st call origination period in the approach of this invention as the preparation period for setting up the 2nd call origination period, it is desirable to measure the arrival-of-the-mail frequency of the 1st call origination period with as sufficient a precision as possible. For that purpose, it is advantageous to set up the 1st call origination period long enough, and to make low arrival-of-the-mail frequency in the meantime.

[0032]

[Effect of the Invention] As stated above, since the information gathering approach of this invention is an approach of making the result of having measured actual arrival-of-the-mail frequency reflecting in a setup of a new call origination period when collecting the information from many call origination terminal units, if it applies to informational collection, it has the effectiveness described below.

[0033] It becomes possible to set up correctly the collection period for 1st collecting the information on a predetermined number. According to this effectiveness, arrival-of-the-mail frequency is made high, using the reception capacity of a communication network or a destination side to the limit, if possible, the information on a predetermined number is collected for a short period of time, or arrival-of-the-mail frequency is made low, using the collection period permitted conversely to the limit, and selection of lessening the burden of a communication network, and collecting or realizing the optimal arrival-of-the-mail frequency for the reception capacity by the side of information gathering is attained.

[0034] By 2nd specifying a call origination period to compensate for congestion factor change of a communication network, even if there is congestion factor change, it becomes possible to maintain arrival-of-the-mail frequency uniformly.

[0035] An interesting collection-service-frequency pattern is realizable, such as 3rd making arrival-of-the-mail frequency high, and leaving the possibility of a large inversion up until last minute just before a cofferdam, in the reply of a quiz show, or collection of a questionnaire.

[0036] It is possible for the approach of this invention to, cope with a demand to various collection-service-frequency patterns in short in the above.

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TECHNICAL FIELD

[Field of the Invention] This invention relates to the approach of specifying call origination possible time amount as a communication terminal, when collecting information via a communication line from many communication terminals.

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PRIOR ART

[Description of the Prior Art] For example, in the audience participation program in television broadcasting and a radio broadcasting, the viewer who watched the program may send the reply to quiz or a questionnaire to a broadcasting station etc. via a communication line from communication terminals, such as a telephone. Moreover, a viewer may send a purchase application to a vendor's place via a communication line like a mail order. In such a case, the side which collects a broadcasting station or information like a vendor may have determined quantity, such as a reply and a purchase application, beforehand. The information gathering approach with this invention effective when the amount of the information collected in this way even if the object of information gathering is many and unspecified persons is decided beforehand is offered.

[0003] Thus, when the amount of collection is decided, there is a case where he wants to make arrival-of-the-mail frequency low, and to collect it if possible as a side which collects information, using the time amount with desirable if possible finishing collecting those information early case [time amount] or permitted to the limit. Furthermore, it thinks to make arrival-of-the-mail frequency into a suitable value in consideration of the capacity to receive information.
[0004] In such a case, as a related technique, the approach of controlling the call origination probability of the terminal unit by the side of call origination is well-known. Moreover, as another well-known example, the terminal unit by the side of call origination is beforehand classified into two or more classes, and the approach of permitting call origination one by one and going is in the terminal unit of a different class for every time zone. However, in being the public network to which many and unspecified terminal units were connected in addition to the communication terminal set as the object of information gathering, there is not necessarily no correlation between the arrival-of-the-mail frequency to information gathering equipment, and a call origination probability, and, for this reason, there is no guarantee clear about the time of day when the information on the amount of a schedule gathers.

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EFFECT OF THE INVENTION

[Effect of the Invention] As stated above, since the information gathering approach of this invention is an approach of making the result of having measured actual arrival-of-the-mail frequency reflecting in a setup of a new call origination period when collecting the information from many call origination terminal units, if it applies to informational collection, it has the effectiveness described below.
[0033] It becomes possible to set up correctly the collection period for 1st collecting the information on a predetermined number. According to this effectiveness, arrival-of-the-mail frequency is made high, using the reception capacity of a communication network or a destination side to the limit, if possible, the information on a predetermined number is collected for a short period of time, or arrival-of-the-mail frequency is made low, using the collection period permitted conversely to the limit, and selection of lessening the burden of a communication network, and collecting or realizing the optimal arrival-of-the-mail frequency for the reception capacity by the side of information gathering is attained.
[0034] By 2nd specifying a call origination period to compensate for congestion factor change of a communication network, even if there is congestion factor change, it becomes possible to maintain arrival-of-the-mail frequency uniformly.
[0035] An interesting collection-service-frequency pattern is realizable, such as 3rd making arrival-of-the-mail frequency high, and leaving the possibility of a large inversion up until last minute just before a cofferdam, in the reply of a quiz show, or collection of a questionnaire.
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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] This invention aims at offering the information gathering approach which made it possible to set it as the various forms which are collection sides and desire an arrival-of-the-mail frequency pattern in the case of information gathering. It is in offering the concrete control approach for being in the condition of having made the call origination frequency pattern set up suitably at the beginning performing call origination, measuring the arrival-of-the-mail frequency to a collection center to two or more terminal units which are the informational sources of dispatch, changing the call origination frequency pattern of a terminal unit into them based on a measurement result, and changing a call origination frequency pattern into them further in more detail.

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MEANS

[Means for Solving the Problem] Like the approach of giving the call origination probability of the above-mentioned terminal unit, even if it gives a call origination probability to each of two or more source terminal units of dispatch, just this is insufficient as information for predicting the frequency where information is collected in the information gathering center. It is mentioned that the number of the terminal units which are standing by as the reason to carry out call origination cannot be known by the collection center side, or that call origination is not connected with the arrival to an information gathering center center as it is according to the situation of the traffic of a communication network. Moreover, the limit by the reception capacity of an information gathering center is also assumed.
[0007] This invention tends to measure the frequency where information is actually collected in the information gathering center on the assumption that such conditions, and tends to presume future arrival-of-the-mail frequency by making this measurement result into a basis, and it is going to set it as the value of a request of arrival-of-the-mail frequency further.
[0008] In the information gathering approach that two or more call origination terminal units carry out call origination of the description of this invention to the call origination time of day during the specified call origination period, transmit information to an information gathering center via a communication line, and this information gathering center receives said information After setting up the 1st call origination period, at least the part in said two or more call origination terminal units starts call origination after the time of day which said 1st call origination period starts. The 2nd different call origination period from said 1st call origination period is set as the time of day of the arbitration after the time of day which said 1st call origination period starts. Some [at least] call origination terminal units in said two or more call origination terminal units perform call origination at said 2nd call origination period. Generally the k-th (k is the one or more natural numbers) call origination period is set up, and the call origination period of ** (k+1) is set as the time of day of the arbitration after the start time of the call origination period. Some [at least] call origination terminal units in said two or more call origination terminal units perform call origination at the call origination period of the ** (k+1) concerned, and are in the information gathering approach repeated until it amounts to several n as which the value of k determines the above-mentioned process beforehand.
[0009]
[Embodiment of the Invention] According to this invention, a command is given to each terminal unit in the 1st step so that call origination may be performed at random between two time of day t1 and t2. If the value which generated the value between t1-t2 at random, and was first generated within each terminal unit as an example was r, it is made to perform call origination at time of day r. As a result, the call origination from each terminal unit is equally distributed among t2 from time of day t1. In addition, as for this command, notifying by broadcast is realistic.
[0010] In the 2nd step, the frequency of the arrival produced in the information gathering center by the call origination equally generated with each terminal unit is measured. If measured value was h1, this value h1 is presumed to be what is continued till time of day t2 like drawing 1 . And that by which total n= (t2-t1) and the information on h1 will be collected by time of day t2 is presumed.

[0011] Arrival-of-the-mail frequency is changed in the 3rd step. When changing into the larger value as a pattern of modification than h1, it may change into a value conversely smaller than h1.

[0012] When changing into a larger value, it is illustrated like drawing 2 . Drawing 2 shows the case where arrival-of-the-mail frequency is changed into h2 [larger] than h1, after time of day tnow. changing arrival-of-the-mail frequency into h2 -- the bottom of the arrival-of-the-mail frequency h1 before modification -- time of day tnow from -(t2-tnow) h1 presumed to be collected before t2 -- the information on a number will be collected by time-of-day t3= (t2-tnow) smaller than t2 in approximation, and h1/h2. The call origination conditions of the terminal unit which is r<=t3 are not changed about the call origination time of day r determined as random at the beginning, but about the terminal unit used as r>t3, if the value which newly generated the value between tnow -t3 at random, and was generated first was r', it is made to perform call origination to time-of-day r' as contents of a command of call origination condition modification for that. the call origination of the terminal unit which had become r>t3 as a result at the beginning -- time of day tnow from -- it distributes equally among t3.
[0013] Thus, as a purpose of changing arrival-of-the-mail frequency into a larger value, the case where h1 wants to be smaller than the reception throughput by the side of a collection center, and to utilize reception capacity to the limit can be considered to finish informational collection between short time rather than the original schedule. In addition, in the above-mentioned argument, it is because it is thought that the traffic of the reason refused as approximation-like of a network increases by making the rate of call origination high, and an error produces it in prediction of arrival-of-the-mail frequency.
[0014] When changing into the value h3 smaller next than h1, it is illustrated like drawing 3 . the same argument as the case where it changes into h2 -- before modification -- time of day tnow from -(t2-tnow) h1 presumed to be collected before t2 -- the information on a number will be collected by larger time-of-day t4= (t2-tnow) in approximation than t2, and h1/h3. As contents of a command of call origination condition modification for that, it is r>tnow at the beginning. If the value which newly generated the value between tnow -t4 at random, and was first generated about the set-up terminal unit was r', it is made to perform call origination to time-of-day r'. the result -- original r>tnow the call origination of the terminal unit which had become -- time of day tnow from -- it distributes equally among t4.
[0015] Thus, as a purpose of changing arrival-of-the-mail frequency into a smaller value, the permitted time amount is used to the limit, and the case where the information on a predetermined number is collected without applying a burden to traffic etc. can be considered.
[0016] How the call origination time of day r forbids call origination about the terminal of r>t5 (however, t5<t2) as a modification pattern at the beginning not only like modification of arrival-of-the-mail frequency but like drawing 4 can be considered.
[0017] Moreover, about the terminal whose call origination time of day r was r>t6 (however, t6<t2) like drawing 5 at the beginning, call origination is started at the next time of day t7, and the approach which t8 is made to end is also considered.
[0018] Thus, in this invention, since modification of the call origination time zone of a terminal unit is enabled, it becomes possible to be adapted for change of the congestion factor of traffic, or the situation by the side of an information gathering center, and to control arrival-of-the-mail frequency free.
[0019] Drawing 6 shows the flow of the information gathering approach of this invention.
[0020] In step 1, the 1st call origination period is set up first. The 1st set-up call origination period is sent to each call origination terminal unit by broadcast, and the process to which a random number is generated and call origination time of day is set is included in this step 1 like the above-mentioned with each call origination terminal unit which received this. Collection is started at step 2. And if it is detected that fixed time amount passed at step 3, it will progress to step 4 and the arrival-of-the-mail frequency till then will be measured. And when judged with it being necessary to change call origination conditions in step 5, in step 6, the 2nd call origination period is set up and it is similar to step 1, and the 2nd set-up call origination period is sent to each call origination terminal unit by broadcast, and the process to which a random number is

generated and call origination time of day is set is included like the above-mentioned with each call origination terminal unit which received this. After that, information gathering is continued until a call origination period expires. As mentioned above, let from START of drawing 6 to the step 6 be the 1st cycle.

[0021] When a call origination period needs to be reset up newly between them, it is also possible to set up again, and the procedure in that case considers that a setup of the 2nd call origination period of step 6 of drawing 6 is a setup of the 1st call origination period of step 1, and should just think that from step 1 to the step 6 is repeated. Let the repeat from step 1 after the 1st cycle to step 6 be the n-th cycle (however, referred to as n>=2). In the flow of the n-th cycle, since the 1st call origination period of step 1 is already broadcast as 2nd call origination period of step 6 in the cycle before that, it is not necessary to perform broadcast stated by explanation of the 1st cycle. In the flow of the n-th cycle, it is considered that collection initiation of step 2 is initiation of the 1st call origination period.

[0022] Next, the function and actuation of each part which constitute the system configuration by which the information gathering approach of this invention is enforced, and this system by drawing 7 , drawing 8 , and drawing 9 are explained.

[0023] Drawing 7 shows an example of the configuration of the whole system. In drawing, in 1, a call origination terminal unit and 3 express a communication network, and, as for 4, an information gathering center and 2 express the call origination period information transmitting section, respectively. Moreover, 20, 21, and 22 show the communication line.

[0024] Each carries out call origination of two or more call origination terminal units 2 to the call origination time of day set [in / at the beginning / the 1st call origination period] up at random, and they transmit information to the information gathering center 1 through a communication network 3. In the information gathering center 1, the information which received a message is outputted or accumulated if needed. And arrival-of-the-mail frequency is measured, the 2nd call origination period is set up if needed, and the call origination period information about the 2nd call origination period is created. This call origination period information is sent to the call origination period information transmitting section 4 via the communication line 22, and is broadcast in the form of a broadcast wave from the call origination period information transmitting section. Based on the call origination period information on a call origination terminal unit broadcast [in / a part / at least / equipment], it resets call origination time of day.

[0025] Drawing 8 shows the configuration of an information gathering center. In 5, the collection information storage section and 7 express an arrival-of-the-mail frequency test section, and, as for 8, a collection information receive section and 6 express the call origination period information creation section, respectively. These functions and actuation are as stating below. That is, it connects with the communication line 21 connected to a communication network 3, and the collection information receive section 5 receives the information sent from the call origination terminal unit 2. The received information is recorded by the Records Department which is accumulated in the collection information storage section 6 if needed, or does not illustrate. On the other hand, the arrival-of-the-mail frequency to a receive section 5 is measured in the arrival-of-the-mail frequency test section 7. This measured value is sent to the call origination period information creation section 8. In the call origination period information creation section 8, a call origination period is set up based on the received measured value, the call origination period information containing this is created, and call origination period information is sent to the call origination period information transmitting section 4 through a communication wire 22.

[0026] Drawing 9 shows the configuration of the call origination terminal unit 2. 9 is the call origination section and the call origination section 9 has the circuit interface section 10 and the network control section 11 to a communication wire 20. Moreover, for 12, as for the call origination period setting section and 14, a call origination actuation control section and 13 are [a call origination period information receive section and 15] control units. Moreover, 18 is the transmit information are recording section, and 19 is the connection switch section. These functions and actuation are as stating below.

[0027] In the call origination period information receive section 14, the call origination period

information broadcast from said call origination probability information transmitting section 4 is received, and the received information is sent to the call origination period setting section 13. In the call origination period setting section 13, while extracting a call origination period from call origination period information, a random number is generated and the call origination time of day within a call origination period is set up. The set-up call origination time of day is sent to the call origination actuation control section 12. From the call origination actuation control section 12, when said set-up call origination time of day came and it is checked that transmit information is accumulated in the transmit information are recording section 18, the trigger for call origination actuation initiation is sent to a network control section.

[0028] In order to perform call origination, it is required for the information transmitted from a control unit 15 to be inputted by the user ahead of call origination time of day. While the inputted information is accumulated in the transmit information are recording section 18 till call origination time of day, the information which shows that transmit information is accumulated is sent to the call origination actuation control section 12 from the transmit information are recording section. Thus, although it is required to input the information to transmit before call origination time of day at the latest about actuation of the call origination actuation control section 12, the approach the information to transmit makes it the requirement for call origination actuation to be inputted before the time of day of the collection initiation in the 1st above-mentioned cycle is also considered.

[0029] The line connection procedure currently used idiomatically [because of connection of a communication line] as call origination actuation of the call origination section 9 is performed. That is, the connection switch section 19 is moved to the position by which the circuit interface section 10 is connected to the network control section 11 at the call origination initiation time. And after the network control section 11 carries out circuit prehension (or off-hook) through the circuit interface section 10 ignited by the trigger from the call origination actuation control section 12, it sends out the connection signal for connecting a circuit to the information gathering center 1 (or dial), and waits for the line connection by the communication network. After a line connection, the switch section 19 is switched to the transmit information are recording section 18 side, reads the transmit information accumulated in the transmit information are recording section 18, and sends it out to a communication wire 20.

[0030] A system configuration to carry the configuration of the information gathering approach of this invention and this out is as having stated above.

[0031] In addition, although the above explanation showed drawing where broadcast of call origination period information is performed by wireless, broadcast may be performed on the cable track. Moreover, the configuration gestalt and signal system of a track are not asked. Moreover, when regarding the 1st call origination period in the approach of this invention as the preparation period for setting up the 2nd call origination period, it is desirable to measure the arrival-of-the-mail frequency of the 1st call origination period with as sufficient a precision as possible. For that purpose, it is advantageous to set up the 1st call origination period long enough, and to make low arrival-of-the-mail frequency in the meantime.

[Translation done.]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is drawing showing the example of a setting of the call origination period in operation of this invention.
[Drawing 2] It is drawing showing another example of a setting of the call origination period in operation of this invention.
[Drawing 3] It is drawing showing another example of a setting of the call origination period in operation of this invention.
[Drawing 4] It is drawing showing another example of a setting of the call origination period in operation of this invention.
[Drawing 5] It is drawing showing another example of a setting of the call origination period in operation of this invention.
[Drawing 6] It is drawing showing the operation flow of this invention.
[Drawing 7] It is drawing showing the example of a configuration of the whole information gathering system for inventing.
[Drawing 8] It is drawing showing the example of a configuration of the information gathering center for carrying out this invention.
[Drawing 9] It is drawing showing the example of a configuration of the call origination terminal unit for carrying out this invention.
[Description of Notations]
1 Information Gathering Center
2 Call Origination Terminal Unit
3 Communication Network
4 Call Origination Period Information Transmitting Section
5 Collection Information Receive Section
6 Collection Information Storage Section
7 Arrival-of-the-Mail Frequency Test Section
8 Call Origination Period Information Creation Section
9 Call Origination Section
10 Circuit Interface Section
11 Network Control Section
12 Call Origination Actuation Control Section
13 Call Origination Period Setting Section
14 Call Origination Period Information Receive Section
15 Control Unit
18 Transmit Information Are Recording Section
19 Connection Switch Section
20 Communication Line
21 Communication Line
22 Communication Line

[Translation done.]

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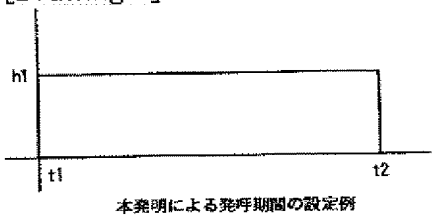
3.In the drawings, any words are not translated.

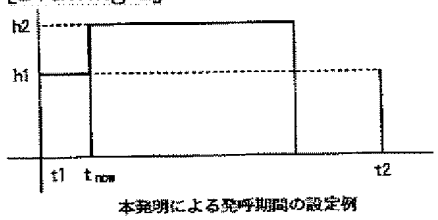
DRAWINGS

[Drawing 1]



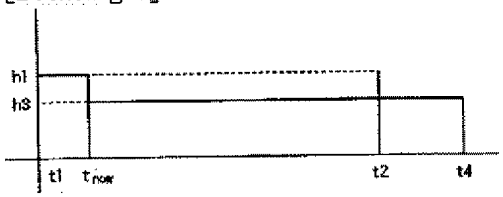
本発明による発呼期間の設定例

[Drawing 2]



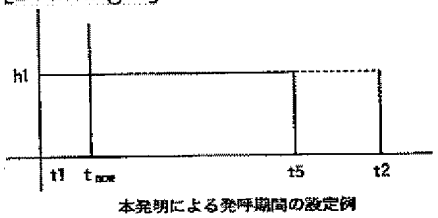
本発明による発呼期間の設定例

[Drawing 3]



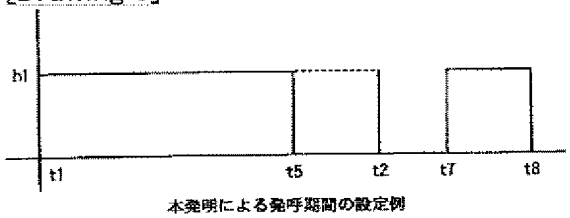
本発明による発呼期間の設定例

[Drawing 4]



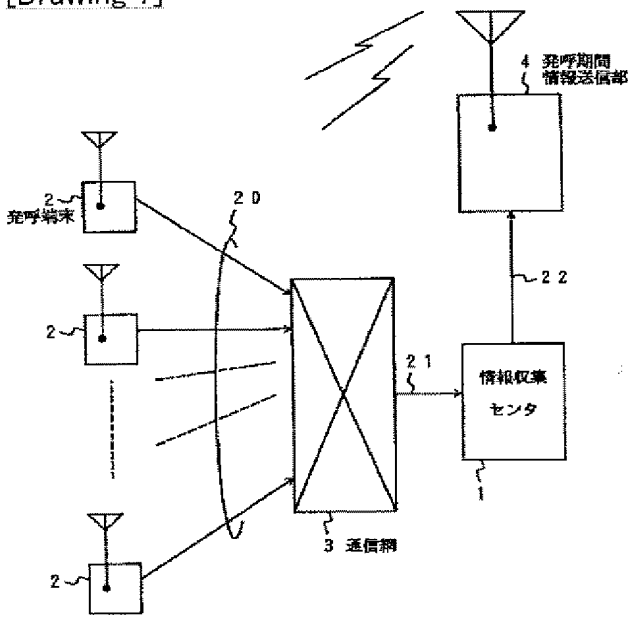
本発明による発呼期間の設定例

[Drawing 5]

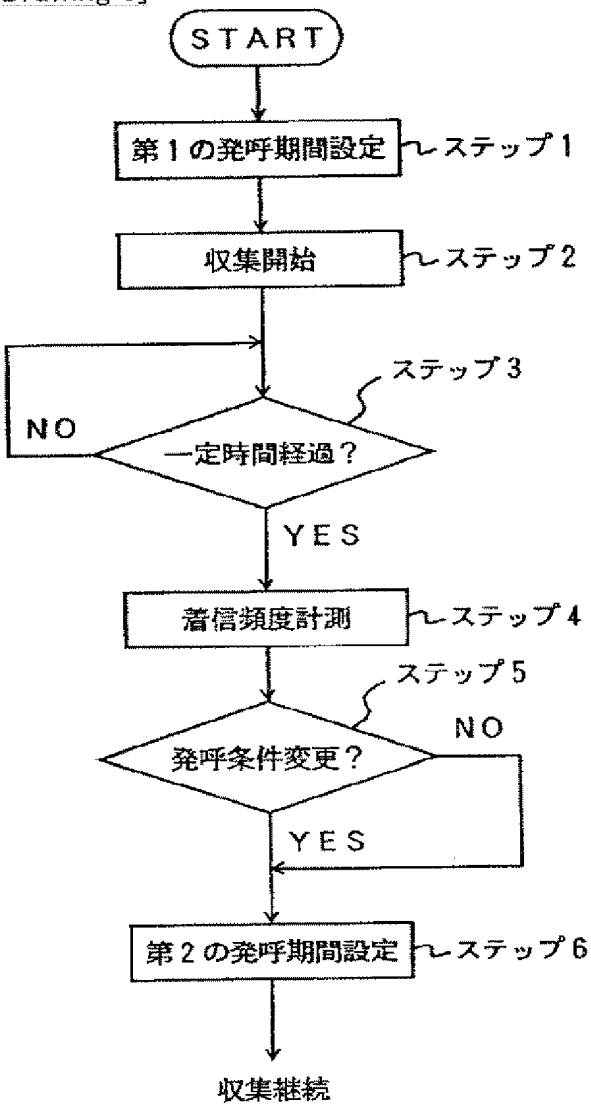


本発明による発呼期間の設定例

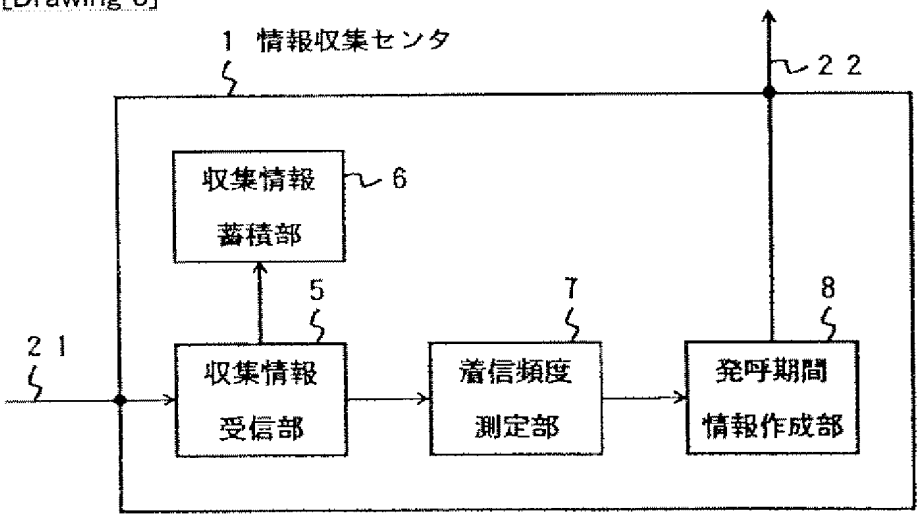
[Drawing 7]



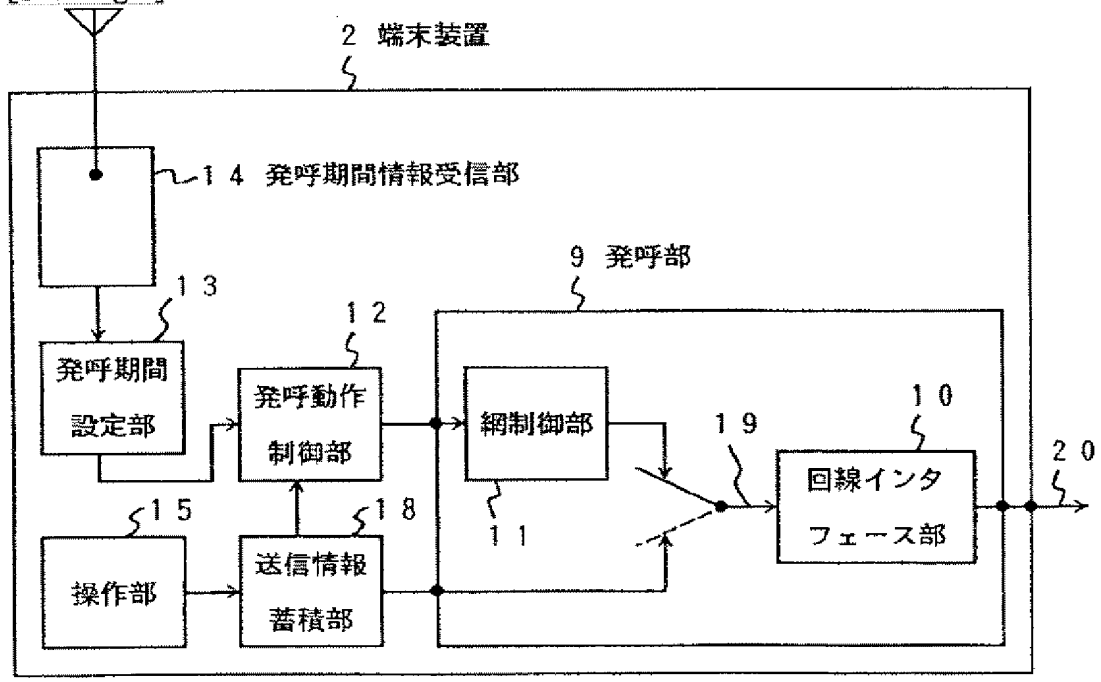
[Drawing 6]



[Drawing 8]



[Drawing 9]



[Translation done.]